

In re Patent Application of:
JOFFE ET AL
Serial No. 10/663,631
Filed: **SEPTEMBER 16, 2003**

IN THE CLAIMS:

1. (currently amended) A method of determining the location of an open fault along a wireline, serving digital subscriber equipment at a location remote with respect to a central office facility, said location of said fault being determined relative to a line card installed in said central office facility, said method comprising the steps of:

(a) applying an electrical stimulus to said wireline from said line card; and

(b) at said line card, measuring capacitance parameters of said wireline in response to said electrical stimulus applied in step (a), and determining from said measured capacitance parameters the distance from said line card to said open fault; and wherein

step (a) comprises applying a prescribed frequency to said wireline, and step (b) comprises measuring admittances of tip and ring portions of said wireline to derive a sum distance value representative of the sum value of conductor lengths of tip and ring portions of said wireline and the difference value between conductor lengths of said tip and ring portions of said wireline, and processing said sum and difference values to determine the distance from said line card to said open fault.

Claim 2 (cancelled).

3. (currently amended) The method according to claim [[2]]1, wherein step (a) comprises driving a center-tap location of a transformer coupling line card circuitry to said wireline with said prescribed frequency.

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4. (currently amended) The method according to claim [[2]]1, wherein step (b) comprises measuring longitudinal balance to provide an indication of the difference in lengths of said tip and ring conductors.

5. (currently amended) ~~The method according to claim 1A~~
method of determining the location of an open fault along a
wireline, serving digital subscriber equipment at a location
remote with respect to a central office facility, said location of
said fault being determined relative to a line card installed in
said central office facility, said method comprising the steps of:

(a) applying an electrical stimulus to said wireline from
said line card; and

(b) at said line card, measuring capacitance parameters of
said wireline in response to said electrical stimulus applied in
step (a), and determining from said measured capacitance
parameters the distance from said line card to said open fault,
and wherein

step (b) comprises conducting capacitance to ground measurements of respective tip and ring conductors of said wireline in response to said electrical stimulus applied in step (a), and deriving therefrom a sum distance value representative of the sum value of conductor lengths of tip and ring portions of said wireline to said fault and the difference value between conductor lengths of said tip and ring portions of said wireline to said fault.

6. (currently amended) A method of determining the location of an open fault along a telecommunication tip and ring wireline pair, serving subscriber equipment at a location remote with respect to a central office facility, said location of said fault being determined relative to a line card installed in said central office facility, said method comprising the steps of:

(a) applying a prescribed frequency signal to said wireline

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from said line card; and

(b) at said line card, conducting tip-to-ground and ring-to-ground capacitance measurements in response to said prescribed frequency signal applied in step (a), and determining from said measured capacitance parameters the distance from said line card to said open fault; and wherein

step (b) comprises measuring impedances of tip and ring wireline portions of said wireline pair and deriving therefrom a sum distance value representative of the sum value of conductor lengths of said tip and ring wireline portions and the difference value between conductor lengths of said tip and ring wireline portions, and processing said sum and difference values to determine the distance from said line card to said open fault.

Claim 7 (cancelled).

8. (currently amended) The method according to claim ~~[[7]]~~6, wherein step (a) comprises driving a center-tap location of a transformer coupling line card circuitry to said wireline with said prescribed frequency signal.

9. (currently amended) The method according to claim ~~[[7]]~~6, wherein step (b) comprises measuring longitudinal balance to provide an indication of the difference in lengths of said tip and ring wireline portions.

10. (currently amended) An arrangement for determining the location of an open fault along a wireline serving subscriber equipment at a location remote with respect to a central office facility, said location of said fault being determined relative to a subscriber loop line card installed in said central office facility, comprising:

an electrical stimulus generator within said central office facility and being operative to apply a prescribed signal to said

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wireline; and

a line card measurement unit installed in said line card, which is operative to conduct capacitance measurements of said wireline in response of application to wireline of said electrical stimulus by said electrical stimulus generator, and derive therefrom the distance from said line card to said open fault; and wherein

said electrical stimulus generator is operative to apply a prescribed frequency to said wireline, and said line card measurement unit is operative to measure admittances of tip and ring portions of said wireline to derive a sum distance value representative of the sum value of conductor lengths of tip and ring portions of said wireline and the difference value between conductor lengths of said tip and ring portions of said wireline, and to process said sum and difference values to determine the distance from said line card to said open fault.

Claim 11 (cancelled).

12. (currently amended) The arrangement according to claim ~~[[11]]~~10, wherein said electrical stimulus generator is operative to drive a center-tap location of a transformer coupling line card circuitry to said wireline with said prescribed frequency.

13. (currently amended) ~~The arrangement according to claim 10~~An arrangement for determining the location of an open fault along a wireline serving subscriber equipment at a location remote with respect to a central office facility, said location of said fault being determined relative to a subscriber loop line card installed in said central office facility, comprising:

an electrical stimulus generator within said central office facility and being operative to apply a prescribed signal to said wireline; and

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a line card measurement unit installed in said line card, which is operative to conduct capacitance measurements of said wireline in response of application to wireline of said electrical stimulus by said electrical stimulus generator, and derive therefrom the distance from said line card to said open fault, and wherein

said line card measurement unit is operative to conduct capacitance to ground measurements of respective tip and ring conductors of said wireline in response to said electrical stimulus, and to derive therefrom a sum distance value representative of the sum value of conductor lengths of tip and ring portions of said wireline to said fault and the difference value between conductor lengths of said tip and ring portions of said wireline to said fault.